Project Surveillance
Plan Workshop

Performance-based Contracting Initiative
IBT Lesson 1

Prepared for NASA
by OPM and BDM Federal, Inc.

November 1996

Student Notes:

Class Participant Identification Exercise

- **Using the provided 5 x 7 card, identify yourself to the rest of us; write down the following:**
  - Your Name
  - Your Office/Project/Location
  - Areas of Current Responsibility
  - Prior Experience with Performance-based, Completion, or Incentivized Contracts
  - Personal Expectations from the Course
- **BONUS:**
  - Explain the Difference between Insight and Oversight in Surveillance of Contracted Efforts

Student Notes:

Course Introduction

Student Notes:

Why Performance-based Contracting?

- **Reduced Resources**
  - **Planned $4 Billion in Cuts by End of Fiscal 2000**
- **Costs Less**
  - **Contractor Able to Reduce Overhead Related to Direct NASA-required Project/Administration Support**
  - **Reduced NASA Administrative Oversight - Focus Instead on NASA Core Missions (R&D and Space Exploration)**

Student Notes:

NASA Supports PBC

- **Prime Signator to Office of Procurement Policy (OMB) PBC Policy**
  - **Pay for Performance, not Best Efforts**
  - **Procurements Structured about Desired Product or Outcome**
- **NASA Being Spotlighted as *the* Success Story in "Reinventing Government" Initiatives**

Student Notes:

PBC Makes Sense

- **Makes Performance the Criteria for Acceptability**
  - **Would you repair your car with a shop that says "trust us" and bills you using a Time and Material approach?**
- **Enforces Accountability**
- **Lets NASA Do What It Does Best**

Student Notes:

"The trouble with the future is that it usually arrives before we're ready for it."

Arnold Glasgow, American Humorist

Student Notes:

Course Introduction

- **<u>Objective</u>:** **The student will acquire the technical and process knowledge required to develop an initial Project Surveillance Plan (PSP) for a performance-based contract.**

- **<u>Learning Format</u>: This two-day, hands-on workshop focuses on developing an understanding of content and process with the necessary skills to create a PSP in a collaborative team setting.**
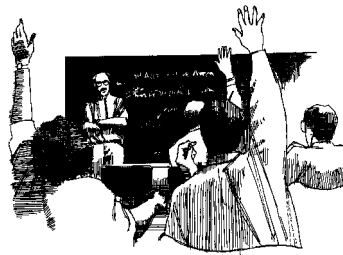
Student Notes:

Course Introduction (Concluded)

- **Ground Rules for this Course**
  - **There are no rules.**
  - **Imagination and creativity reign supreme!**
  - **In the event of bureaucratic block, see #1 above.**

- **Your degree of participation determines in large part what you will gain from this workshop.**

Student Notes:

Course Learning Objectives

- **The student will accomplish the following:**
  - **Understand the Performance-based Contracting (PBC) Initiative Content and Implementation Plan**
  - **Relate the Project Surveillance Plan to the PBC Initiative**
  - **Comprehend Basic Relationships in the PSP Structure and Content**
  - **Obtain and Employ Practical Experience in the Team Formation and Project Team Processes Required to Create a PSP**
  - **Demonstrate the Ability to Clearly Articulate Surveillance Strategies Based on Program Objectives as well as NASA Performance and Advanced Quality Initiatives**
  - **Demonstrate Ability to Develop Surveillance Activities in Consonance with Program Strategies, Resources, and Contracting Approach**
  - **Demonstrate Ability to Define the Project Specific Metrics to Support Program Strategies and Management Response Guidelines**
  - **Demonstrate Ability to Define the Project Surveillance Team Structure Needed to Execute the Desired Surveillance Program**
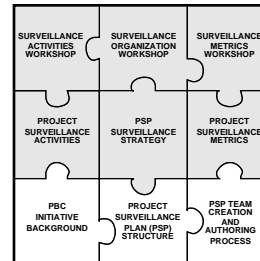
Student Notes:

Course Overview

Student Notes:

Course Overview

- **Review of Performance-based Contracting (PBC) Initiative**
- **Introduction to the Project Surveillance Plan (PSP)**
  - **Surveillance Plan Purpose**
  - **PSP Content**
- **Creating a PSP**
  - **Assembling a Development Team**
  - **Document Development Process**

SURVEILLANCE ACTIVITIES WORKSHOP	SURVEILLANCE ORGANIZATION WORKSHOP	SURVEILLANCE METRICS WORKSHOP
PROJECT SURVEILLANCE ACTIVITIES	PSP SURVEILLANCE STRATEGY	PROJECT SURVEILLANCE METRICS
PBC INITIATIVE BACKGROUND	PROJECT SURVEILLANCE PLAN (PSP) STRUCTURE	PSP TEAM CREATION AND AUTHORING PROCESS

Student Notes:

Course Overview (Continued)

- **Creating the Surveillance Strategy and Determining Surveillance Activities**
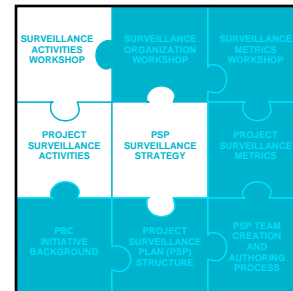 - **Surveillance Strategy Options**
    - **Policy Coordination**
    - **MEANS-ENDS Consolidation**
    - **Balanced Oversight-Insight**
  - **Surveillance Activity Opportunities**
    - **Communication Activities**
    - **Verification Activities**
    - **Assurance Activities**
    - **Risk-reducing Activities**
- **Workshop - Specifying Surveillance Activities**

Student Notes:

Course Overview (Concluded)

- **Establishing Surveillance-focused Performance Metrics**
  - **Sample Metric Types Available and Their Utility**
  - **Establishing Performance Control Limits**
  - **Using Metrics in the Management Control Process**
- **Workshop - Identifying Focused Performance Metrics**
- **Organizing for and Assigning Project Surveillance Responsibility**
  - **Internal and External Participants**
  - **Partnering Approach**
  - **Maintaining Accountability**
- **Workshop - Organizing for and Assigning Surveillance Responsibility**
- **Plan Creation Workshop Recap and Review**
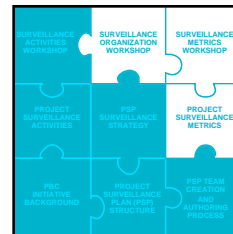
Student Notes:

**Review of
PBC Initiative**

Student Notes:

Lesson Overview

- **Review of Performance-based Contracting (PBC) Initiative**
  - **PBC within NASA**
  - **PBC Technical Requirements**
  - **Types of PBC Contract Options**
  - **Future Plans**

- **Project Surveillance Plan (PSP) Introduction**
  - **Background**
  - **Purpose**
  - **Process Used to Create PSP**
  - **PSP Content Overview**

Student Notes:

- **PBC within NASA**
- **PBC Requirements**
  - **Statement of Work**
  - **Deliverables**
  - **Incentives**
  - **Evaluation Process**
  - **Incentive Award Process**
- **Types of PBC Contract Options**
- **Future Plans**

Student Notes:

PBC within NASA

- **Performance-based contracting reflects a key strategy to revolutionize NASA -*"We will change the way we work with our contractors."***

- **"The policy is intended to limit the involvement of Government employees and provide contractors maximum flexibility in meeting the Government's actual needs. ... How to fulfill that need is entrusted to the contractor."**

- **"We will use performance-based contracting" and its processes and products to assure NASA receives "the desired outputs and outcomes of the contract."**

- **PBC "creates an environment in which companies engage in NASA contracts not only for immediate profits but also to gain value from the partnership between Government and industry."**

Quotes from February 1996 NASA Strategic Plan and Administrator's PBC Policy Letter

Student Notes:

PBC within NASA (Continued)

- **Definition:**
  - **Performance-based contracting means structuring all aspects of an acquisition around the purpose of the work to be performed as opposed to either the manner by which the work is to be performed or broad and imprecise statements of work.**
    OMB Office of Federal Procurement Policy 91-2

- **NASA Adds This:**
  - **... It emphasizes objective, measurable performance requirements and quality standards in developing statements of work, selecting contractors, determining contract type and incentives, and performing contract administration.**
    Brewer-Taylor Consultants

Student Notes:

PBC within NASA (Concluded)

- **There are four pillars to performance-based contracting**
  - **Development of a Clear and Precise Statement of Work/Specification**
  - **Selection of a Work-appropriate Contract Type**
  - **Use of a Vital Incentive Structure That Requires Low Cost to Administer**
  - **Creation and Consistent Application of a Tailored Surveillance Plan**

Student Notes:

Performance-based Contracting Insights

- **Performance-based contracting is structuring all aspects of an acquisition around the purpose of the work to be performed. "Pay for Results, Not Just Best Efforts"**

- **PBC emphasizes objective, measurable performance requirements and quality standards for the following:**
  - **Developing Statements of Work**
  - **Determining Contract Type and Incentive Structure**
  - **Selecting Contractors**
  - **Executing Contract Administration and Monitoring Contract Performance**

- **PBC contracts include explicit performance standards for the product delivered. Performance standards are the criteria for determining whether the work requirements are met.**

Student Notes:

PBC Requirements

- **Statement of Work**
  - **Define in Terms of Desired End Results**
  - **Embed System Performance Requirements Here**
  - **Unless Absolutely Essential, Do Not Specify "How to"**
- **Deliverables**
  - **Clearly Articulated Description of Expected Outcome or Product Performance**
    - **Expected Product Quantity, Quality, Place, and Time**
  - **Includes Hardware, Software, and Data**

Student Notes:

PBC Requirements (Concluded)

- **Incentives**
  - **Traditionally Based on Schedule Performance and Cost Savings Criteria**
  - **PBC Allows Other Types of Criteria – Product Performance, Innovation Embedded, Technology Breakthrough**
  - **Establish Firm Criteria for Award - Objective and Subjective**

- **Performance Evaluation and Incentive Award Process**
  - **Routine Approach Is to Employ Committees and Panels and Subjective Assessments - Tends to Be Administratively Expensive in Terms of Time and Manpower**
  - **No-hassle, Simple Evaluation and Award Process Based on Predefined Objective Performance Metrics and Award Tables; Works Better, Easier to Administer, and Less Contentious**
  - **Evaluation and Award Should Be Close to the Period of Performance**
  - **May Include Incentives Other than Fee**

Student Notes:

Types of PBC Contract Options

GOVERNMENT CONTRACT TYPE	TYPE OF PRODUCT PURCHASED	GOVERNMENT RISK/ COST TO ADMINISTER	CURRENT NASA PERFORMANCE INCENTIVE	TYPICAL CURRENT PERFORMANCE METRIC TYPES
FIXED PRICE				
FIRM FIXED PRICE (FFP)	MATURE PRODUCT WITH DETAILED, STABLE SPECIFICATIONS; COTS WITH NO ADAPTATION	LOW/LOWEST	NONE	NONE
FIXED PRICE WITH ECONOMIC PRICE ADJUSTMENT (FP/EPA)	FUELS, BULK COMMODITIES WITH FIRM REQUIREMENTS	LOW/LOW	NONE	NONE
FIXED PRICE INCENTIVE (FPI)				
FIXED PRICE INCENTIVE FIRM TARGET (FPIF)	SUPPLIES OR SERVICES WITH SOME COST OR TECHNICAL UNCERTAINTIES (FIRM DESIGN SPECS)	LOW - MODERATE/ LOW	LIMITED TO COST UNDERRUN SHARING	SINGLE POINT EVALUATION OF COST MANAGEMENT
FIXED PRICE INCENTIVE - SUCCESSIVE TARGETS (FFIS)	SUPPLIES OR SERVICES WITH SOME COST OR TECHNICAL UNCERTAINTIES (FIRM DESIGN SPECS) (LRIP)	LOW - MODERATE/ LOW - MODERATE	LIMITED TO COST UNDERRUN SHARING	MULTI-POINT EVALUATION OF COST MANAGEMENT
COST REIMBURSABLE				
COST PLUS INCENTIVE FEE (CPIF)	SUPPLIES OR SERVICES WITH SIGNIFICANT COST OR TECHNICAL UNCERTAINTIES	MODERATE/ MODERATE	FEE - ADJUSTMENT LIMITED BY STATUTE	PROJECTED COST VERSUS ACTUAL COST
COST PLUS AWARD FEE (CPAF)	SUPPLIES OR SERVICES WITH SIGNIFICANT COST OR TECHNICAL UNCERTAINTIES	MODERATE - HIGH/ VERY HIGH	FEE - BASE AND VARIABLE AWARD FEE - MAY INCLUDE SHARE LINE	GOVERNMENT'S APPRAISAL OF PERFORMANCE, SCHEDULE, AND COST
COST PLUS FIXED FEE (CPFF)	SUPPLIES OR SERVICES WITH SIGNIFICANT COST OR TECHNICAL UNCERTAINTIES	HIGH/LOW	NONE (GUARANTEED FEE)	NONE

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Student Notes:

Types of PBC Contract Options (Concluded)

GOVERNMENT CONTRACT TYPE	TYPE OF PRODUCT PURCHASED	GOVERNMENT RISK/ COST TO ADMINISTER	CURRENT NASA PERFORMANCE INCENTIVE	TYPICAL CURRENT PERFORMANCE METRIC TYPES
INDEFINITE DELIVERY				
DEFINITE QUANTITY - INDEFINITE DELIVERY	SPECIFIC QUANTITY OF ITEMS OR SERVICES KNOWN, TIME AND PLACE TO BE DETERMINED	LOW/LOW - MODERATE	NONE	NONE
REQUIREMENTS	FREQUENT RECURRING NEED OF SPECIFIC SUPPLIES OR SERVICES, BUT QUANTITY, PLACE, AND TIME ARE OPEN	LOW/LOW - MODERATE	NONE	NONE
INDEFINITE QUANTITY - INDEFINITE DELIVERY (IDIQ)	FUELS, BULK COMMODITIES WITH BOUNDED REQUIREMENTS	LOW - MODERATE/ LOW	NONE	NONE
TIME AND MATERIAL (T&M)	SUPPLIES AND SERVICES AT A PRE-SPECIFIED LOADED RATE	MODERATE/ LOW - MODERATE	NONE	NONE
LABOR HOUR (LH)	LABOR ONLY	MODERATE/ LOW - MODERATE	NONE	NONE

SS-R3-6148-C17

Student Notes:

Plans for PBC Implementation

- **Evolutionary Phase-in:**
  - **Creating Agency-wide Awareness and Training**
  - **Building an Experience Base Using Model Programs**
  - **Institutionalizing and Continuously Improving**

- **Budgetary Constraints May Become a Driving Force for Accelerated Evolution**

- **Closely Tied into Related Activities:**
  - **Reorganization of Center Roles and Responsibilities and Restructuring of Headquarters**
  - **Advanced Quality Systems (AQS) Initiative**

Student Notes:

Project Surveillance
Plan Introduction

Student Notes:

Project Surveillance Plan Introduction

- **Background**
  - Linkage to PBC
  - Directive Guidance
  - Shift in Surveillance Philosophy
- **Purpose**
- **Process Used to Create PSP**
- **PSP Content Overview**

Student Notes:

Project Surveillance Plan Background

- **Project Surveillance Plan is linked directly to PBC initiative:**
  - PSP is the Project Manager's implementing instruction for surveillance and performance assurance monitoring of the contractor's effort.
  - PSP identifies up front "what is important," "what will be measured," and "by what standards."

- **Directive guidance tells the PM to have a PSP:**
  - OFPP Policy Letter 91-2 on Quality Assurance
    - Agencies shall "develop formal, measurable performance standards and *surveillance plans* to assess contractor performance..."
    - "Avoid ... intrusive, process-oriented inspection and oversight programs"
  - NASA is Signator to OFPP Pledge to Implement these Directives

Student Notes:

Results from Shift in
Performance Surveillance Philosophy

- **Surveillance Shifts from Oversight to Insight**
  - NASA will conduct surveillance using more of a "hands-off" approach employing a limited set of surveillance activities and selectively chosen performance metrics to ensure that requirements are being met.
  - As a result, contractors will assume increased accountability and responsibility for the integrity of their processes and the ultimate quality of their delivered products.
- *Oversight* is an intrusive process of gathering contractor product or process data through on-site, in-series involvement in the process. Oversight entails a form of control of the process itself.
- *Insight* is a process of gathering a minimum set of product or process data that provide adequate visibility into the integrity of the product or process. Insight does not constitute control or management of the process.

Student Notes:

Purpose of the Project Surveillance Plan
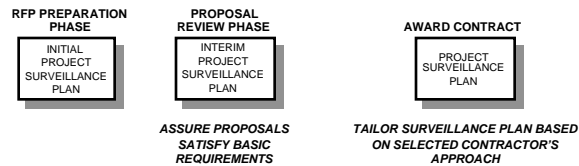
- Establishes a Unified Strategy for All Participants in the Surveillance Process

- Identifies and Focuses Surveillance Activities Where Needed

- Specifies Key Metrics, Resources, and Related Management Processes

- Identifies Surveillance Organization and Assigns Program Responsibilities

Student Notes:

Timeline for Building the PSP

NASA

- **Timing - During concept development, pen a decisive initial plan:**
  - **Draft Plan - Concurrent with RFP/SOW**
  - **Finalize during Award/Negotiations with Contractor**

RFP PREPARATION PHASE	**PROPOSAL REVIEW PHASE**	**AWARD CONTRACT**
INITIAL PROJECT SURVEILLANCE PLAN	INTERIM PROJECT SURVEILLANCE PLAN	PROJECT SURVEILLANCE PLAN
	ASSURE PROPOSALS SATISFY BASIC REQUIREMENTS	*TAILOR SURVEILLANCE PLAN BASED ON SELECTED CONTRACTOR'S APPROACH*

TIME →

The completion of the PSP requires a multi-phased, iterative approach.

Student Notes:

Plan Development Cycle

- **Initial Plan Requires Discipline and Focus to Structure the Overall Surveillance Program**
    - Sets the Tone for All Surveillance Activities in the Program
    - Should Integrate "Lessons Learned" From Like Programs
    - Focuses Attention to Critical Initial Issues

- **Use the Process - Continue With Iterative Refinement**
    - Obtain More of the Contractor's Perspective
    - Give Credit for Proven Contractor Processes - Back-off Surveillance When Comfort Level Increases
    - Focus on Continuous Improvement of Processes to Meet Program Goal
    - Share News of Successes with Others - Develop a "Best Practices" Library

Student Notes:

PSP Content Overview

- **Introduction**
  - **Background**
  - **Project Introduction**
    - **Summary of Prime Contractor Requirements**
    - **Contractor's Detailed Offer**
    - **Contract Type and Incentive Program Summary**
    - **Contractor's Proposed Schedule**
- **Applicable NASA Directives, Policies, and Procedures**
- **Surveillance Plan Objectives**
- **Surveillance Strategy and Approach**
  - **Surveillance Strategy**
  - **Approach to Executing the Strategy**
- **Project Surveillance Activities and Schedule**
  - **Activities**
  - **Schedule**
- **Project Surveillance Metrics and Control Limits**
  - **General Project Metrics**
  - **Risk Issue Metrics**
  - **Response to Performance Outside of Control Limits**
- **Project Surveillance Organization and Required Resources**
  - **Organization**
    - **Individual Responsibilities**
  - **Required Resources**

Student Notes:

Summary

- **The realities of constrained budgets, Congressional and Executive Branch direction, and the public right to assure that NASA is a good steward of public funds require many of the organizational and procedural changes seen in the PBC initiative.**

- **The Project Surveillance Plan is an important part in complying with regulatory and statutory requirements.**

- **The use of a standard approach to developing surveillance plans and executing insight surveillance has substantial potential for improving NASA efficiency in meeting national objectives.**

Student Notes:

**Addenda to Project
Surveillance Plan
Workshop**

**Performance-based Contracting Initiative
IBT Lesson 1**

**Prepared for NASA
by OPM and BDM Federal, Inc.**

December 1996

Student Notes:

PBC Changes NASA Approach to Project Surveillance

- **Surveillance Shifts from *Oversight* to *Insight***
  - **NASA will conduct surveillance using a predominantly "hands-off" monitoring approach to ensure contract requirements are being met:**
    - **Limited Set of Surveillance Activities**
    - **Selectively Chosen Performance Metrics**
  - **The contractor assumes increased accountability and responsibility for the integrity of their processes and the ultimate quality of their delivered products.**
- **Definition of Terms**
  - ***Oversight* - An intrusive process of gathering contractor product or process data through on-site, in-series involvement in the process. Oversight provides a form of control of the process itself.**
  - ***Insight* - A process of gathering a minimum set of product or process data that provide adequate visisbility into the integrity of the product or process, without being directly invovled in the process. Insight watches but does not control management of the process.**

Student Notes:

Project Surveillance
Plan Purpose and Structure

Performance-based Contracting Initiative
IBT Lesson 2

Prepared for NASA
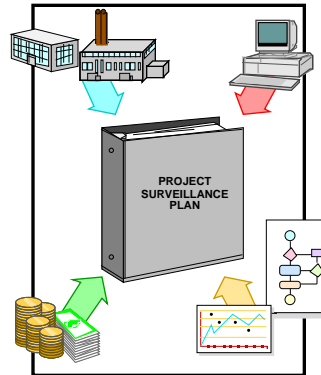**by OPM and BDM Federal, Inc.**

November 1996

Student Notes:

Overview

At the end of this lesson, you will be familiar with the structure and section contents of a standardized Project Surveillance Plan.

- **Purpose of the Project Surveillance Plan (PSP)**

- **PSP Content Overview**

- **Sample Plan Content Illustrations**

PROJECT SURVEILLANCE PLAN

Student Notes:

Purpose of the Project Surveillance Plan

- **Supports Performance-based Contracting Initiative Implementation**
  - Provides Tool for Developing Performance Surveillance Processes
  - Provides a Common Framework for Action through Standardized Approach
- **Establishes a Unified Strategy for All Participants in the Performance Surveillance Process**
- **Identifies and Focuses Surveillance Activities Where They Are Needed**
- **Specifies Key Metrics, Resources, and Related Management Processes**
- **Identifies Surveillance Organization and Assigns Program Responsibilities**
- **Commits Resources to Support a Formal Project Surveillance Program**

Student Notes:

PSP Content Overview
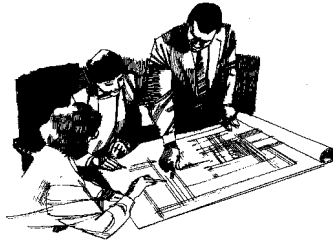
- **Introduction**
- **Surveillance Program Objectives**
- **Applicable NASA Directives, Policies, and Procedures**
- **Surveillance Strategy and Approach**
- **Project Surveillance Activities and Schedule**
- **Project Surveillance Metrics and Control Limits**
- **Project Surveillance Organization and Required Resources**

Student Notes:

Introduction

The "Introduction" section provides essential background information to support PSP strategy development.

- **Background - Prior Agency Experience, Specific Program Needs, Other Related Activities**
- **Program Introduction**
  - **RFP/SOW Requirements**
  - **Proposal Features**
  - **Contract Mechanism**
  - **Top-level Schedule**
  - **History**
- **Identification of Unique Project/Contractor Issues that Drive PSP Content**

Student Notes:

Surveillance Program Objectives

- **The "Surveillance Program Objectives" section articulates the anticipated outcomes from conducting this surveillance program.**

- **Objectives should be expressed in high-level, measurable terms of performance and may be time-phased in their applicability.**

- **Performance areas may include the following:**
  - **Mission Effectiveness**
  - **Return on Investment**
  - **Budget/Cost Target Accomplishment**
  - **Product or Service Quality**
  - **Cost of Quality Data Capture**
  - **NASA Implementation of Insight Performance Monitoring**

- **Objectives of the surveillance program should be clearly traceable in supporting overall project/mission objectives and goals.**

Student Notes:

Applicable NASA
Directives, Policies, and Procedures

- **The "Directives, Policies, and Procedures" section identifies specific NASA governing documents and summarizes the requirements that they impose on the surveillance program.**
- **Potentially includes activities such as the following:**
  - **Inspections and Audits (NEQA, MIPS, etc.)**
  - **Metrics Collection and Analysis**
  - **Performance Incentive Award Process/Standards**
  - **Risk Analysis Procedures**
  - **Activity-based Accounting Standards**
  - **Advanced Quality Systems Initiative "Best Practices" Implementation**
- **Whenever feasible, use of a "tailored" implementation has the potential of reducing oversight in favor of insight monitoring.**

Student Notes:

Surveillance Strategy and Approach

- **The "Surveillance Strategy and Approach" section describes how project surveillance will be accomplished.**
- **"Strategy and Approach" may identify the following:**
  - **Areas of Insight Monitoring versus Oversight Direction**
  - **General Types of Activities**
  - **Use of Metrics in Monitoring Progress**
  - **Use of Audits and Inspections**
  - **Role of Quality Initiatives**
  - **Rationale for Selecting a Specific Approach (Based on Experience, Risk, Cost, etc.)**
- **Strategy provides the "big picture" view of how surveillance assures that overall project objectives are being met.**

Student Notes:

Project Surveillance Activities and Schedule

- **The "Surveillance Activities and Schedule" section identifies the specific recurring and one-time events (and their schedule) that will be conducted to maintain project control through the project contractual period.**
- **Identified activity types include the following:**
  - **Communications**
  - **Product Performance Verification**
  - **Project Assurance Reviews**
- **The schedule shows when specific activities will occur with respect to the overall project and may include the following:**
  - **Surveillance Activities on the Project Critical Path**
  - **Go/No-Go Points**
  - **Milestone Decisions**
 - **Projected Activity Dates/Duration**

Student Notes:

- **The "Surveillance Metrics and Control Limits" section identifies what will be measured, how it will be measured, what constitutes acceptable performance, and what will happen if performance does not meet standards.**

- **Each metric should be described in detail to include the following:**
  - **Key Characteristic or Critical Process Measured by the Metric**
  - **Intended Insight Gained from the Metric**
  - **Whether the Metric Will Be Used As an Input to the Incentive Award**
  - **Source of Data**
  - **Periodicity of Data**
  - **Method of Information Display**
  - **Acceptable Limits of Performance and Why**
  - **Proposed Management Response to Control Limit Non-conformance**

- **Identification of management response is a key feature of incorporating feedback into the processes of project surveillance.**

Student Notes:

Project Surveillance
Organization and Required Resources

- The "Surveillance Organization and Resources" section identifies the "who," assigns the "what," and commits resources for continuing surveillance of project performance.

- "Organization" section identifies and assigns surveillance responsibilities including metrics collection and analysis for the following:
  - Project Organization
  - NASA Oversight Groups
  - Supporting Government Agencies (DCMC, DCAA, etc.)
  - Independent Contractors

- Identifying specific resources sets the "deal"
  - Empowers Surveillance Organization
  - Provides Constraints to NASA Surveillance Activities
  - Commits Signatories to Support of PSP Strategy, Activities, and Control Processes
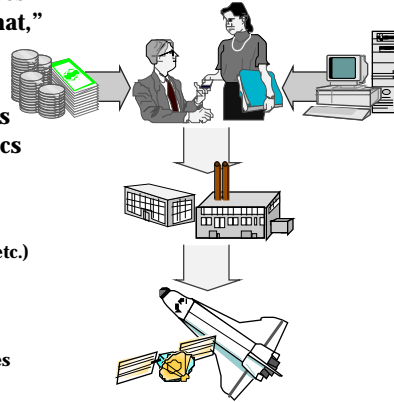
Student Notes:

Summary

- **Employing a structured content when developing a Project Surveillance Plan provides the opportunity to support key elements of the performance-based contracting initiative.**

- **Structure assures a comprehensive strategy backed by complementary performance surveillance activities and a reasoned selection of metrics.**

- **Identification of management action to control or limit violations provides a clear opportunity for critical issue-focused management.**

- **Explicit assignment of organization responsibilities and commitment of project surveillance resources assures performance surveillance is a continuing, vital part of project management.**

Student Notes:

Creating the Project Surveillance Plan Development Team

Performance-based Contracting Initiative
IBT Lesson 3

November 1996

Student Notes:

Learning Objective

- **The workshop participant will comprehend the team concept and related processes employed to complete a Project Surveillance Plan. Specifically, the participant will accomplish the following:**

  - Identify Recommended Project Team Members and Articulate Their Roles in the Total Project Planning Process
  - Describe the Role of the Project Manager
  - List the Critical Outcomes for Which the Team Is Reponsible in Creating the Plan
  - Identify Potential Barriers to Success in Creating a Plan

Student Notes:

Review of Past Lesson - PSP Purpose

- **Supports Performance-based Contracting Initiative Implementation**
  - **Provides Tool for Developing Performance Surveillance Processes**
  - **Provides a Common Framework for Action through Standardized Approach**
- **Establishes a Unified Strategy for All Participants in the Performance Surveillance Process**
- **Identifies and Focuses Surveillance Activities Where They Are Needed**
- **Specifies Key Metrics, Resources, and Related Management Processes**
- **Identifies Surveillance Organization and Assigns Program Responsibilities**
- **Commits Resources to Support a Formal Project Surveillance Program**
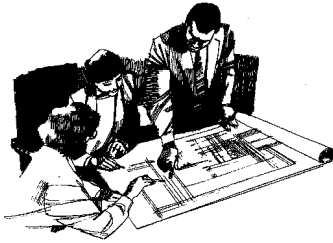
Student Notes:

Review of Past Lesson - PSP Content Overview

- **Introduction**
- **Surveillance Program Objectives**
- **Applicable NASA Directives, Policies, and Procedures**
- **Surveillance Strategy and Approach**
- **Project Surveillance Activities and Schedule**
- **Project Surveillance Metrics and Control Limits**
- **Project Surveillance Organization and Required Resources**

Student Notes:

Building the Project Surveillance Plan – Lesson Overview

- **Guidelines for Creating the PSP**

- **PSP Development Cycle**

- **The PSP Team**

- **Processes of the PSP Authoring Team**

Student Notes:

Guidelines for Creating the PSP

- **The right people are the key to success.**
  - An integrated project team should be created with authority for functional "buy-in" and general approval, including representatives from the following core functional areas:
    - Project Management   •Contracting
    - Systems Engineering   •Comptroller
    - SR&MA

- **Other functional areas to consider for team participation include the following:**
  - Product End User   – Technology Transfer
  - Logistics   – Small Business Advocate
  - Property   – Flight Operations
  - Safety   – Center Representatives
  - Legal   – Contractor (during Post-award Update)

- **Team members must come to the table ready to accomplish their task without distractions of other tasks.**

Student Notes:

Guidelines for Creating the PSP (Continued)

### Role of the Project Manager

- The Project Manager "owns" the surveillance plan, but requires a fully coordinated approach to obtain a practical plan.

- The Project Manager provides the team the general project strategy and intended limits on surveillance resources.

- The Project Manager establishes hard deadlines while providing resources and senior management support to meet these deadlines.

- The Project Manager "champions" the plan and establishes the means to execute it.

Student Notes:

Guidelines for Creating the PSP (Concluded)

- The Surveillance Plan starts with good ideas and noble theories that are refined by the practical insights and experience of the team members.

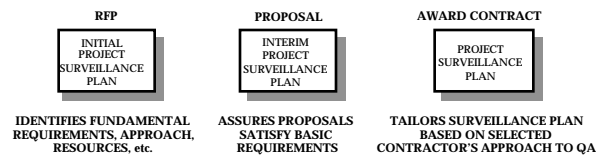- The team must plan for revisions and changes to accommodate organizational realities.

PRACTICAL EXPERIENCE · GOOD IDEAS · NOBLE THEORIES → PROJECT SURVEILLANCE PLAN
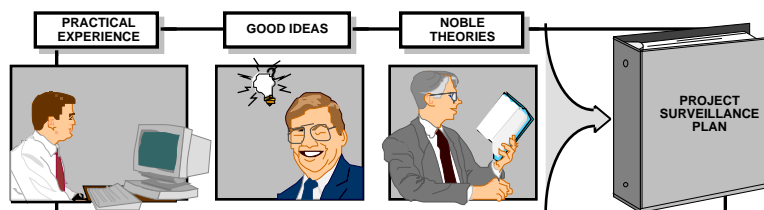
Student Notes:

PSP Development Cycle

- **Timing**
  - **Complete a Comprehensive, Integrated Draft Plan Concurrent with the Authoring of Requirements Documents (RFP/SOW)**
  - **Finalize the Initial Project Surveillance Plan during Award Negotiations with Contractor**
    - **Integrate Contractor-proposed Performance Surveillance/Quality Assurance Items When Practical**
    - **Assure Contract Calls Out Specific Data Requirements for Identified Metrics in CDRL**

RFP	**PROPOSAL**	**AWARD CONTRACT**
INITIAL PROJECT SURVEILLANCE PLAN	INTERIM PROJECT SURVEILLANCE PLAN	PROJECT SURVEILLANCE PLAN
IDENTIFIES FUNDAMENTAL REQUIREMENTS, APPROACH, RESOURCES, etc.	**ASSURES PROPOSALS SATISFY BASIC REQUIREMENTS**	**TAILORS SURVEILLANCE PLAN BASED ON SELECTED CONTRACTOR'S APPROACH TO QA**

TIME →

The completion of the PSP requires a multi-phased, iterative approach.

Student Notes:

PSP Development Cycle (Concluded)

- **Initial Plan Requires Discipline and Focus to Structure the Overall Project Surveillance Program**
  - **Sets the Tone for All Surveillance Activities in the Program**
  - **Should Integrate "Lessons Learned" from Like Programs**
  - **Focuses Attention to Critical Initial Issues**
- **Continue with Iterative Refinement**
  - **Give Credit for Proven Contractor Processes - Plan to Back off Some Surveillance Activities When Agency Comfort Level Increases**
  - **Focus on Continuous Improvement of Processes (and Adjustment of Metrics Standards) to Meet Project Goals**
- **Share News of Successes with Others - Develop an Open Access "Best Practices" Library**

Student Notes:

Purpose of the Team

- **Create a Project Surveillance Plan That Provides a Detailed Methodology for Assuring SOW-specified Performance Is Met on Time and within Budget**
  - Articulate a Project Surveillance Strategy
  - Identify Insight-forming Surveillance Activities That Cover the Contract Life Cycle
  - Develop Performance Metrics and Control Limits
  - Articulate Management Approach to Performance Non-compliance
  - Identify and Assign Responsibilities to Project Surveillance Team Members
- **Obtain Concurrence and Approval for Implementation prior to Contract Award**
- **Teach Others to Be Believers in the Process**

Student Notes:

Organization

Key Roles

- **Team Leader - Preferably Deputy Project Manager**

- **Facilitator**

- **"Book Boss" and Administrative Support Staff**

- **Team Members (with a Vested Interest in Success) - at Least One Each from the following:**
  - **Project Management Staff**
  - **Systems Engineering**
  - **SR&MA Organization**
  - **Contracting Shop**
 - **Comptroller Organization**

Student Notes:

Skills Required

- **Functional Expertise and Practical Experience with Contractor Community**
- **Strong Team Orientation - "Win - Win" Bias**
- **Prior Training in the following:**
  - **Performance-based Contracting**
  - **Quality Processes**
  - **Project Management**
  - **Technical Writing**
- **Energetic, Positive Attitude with a Desire to Make a Difference**

Student Notes:

Support Required for Team Operations

- **Open Meeting and Group Work Areas Away from Normal Work Centers**
- **Large Team Writing Surfaces**
    - Pana-Board
    - Butcher Paper Pads and Easels
- **Computers, Fax, and Phones (Optional)**
- **Access to Other Experts and RFP/SOW Team**
- **Project Background Materials**
    - PSP Team Charter
    - Draft Project SOW
    - Draft Project Contract Incentive Plan
    - NASA Handbooks, DOD Instructions
    - Quality Standards
    - "Best Practices" Data Base
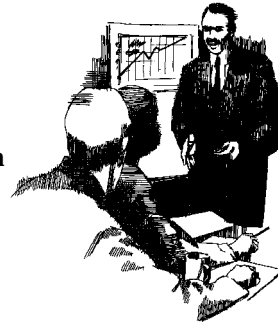
Student Notes:

Processes of the PSP Authoring Team

- **Introducing Innovation and Setting Realistic Expectations**

- **Specifiying Surveillance Activities**

- **Estimating Resource Requirements**

- **Completing Plan Coordination for Approval**

Student Notes:

Introducing Innovation and Setting Realistic Expectations

- **Implement Innovation Readily during Known Transition Points**
- **Use Available Resources**
  - **"Best Practices" Taken from Industry, Other Government Agencies, Trade Journals, and Leading Edge Innovators**
- **Limit Non-value-added "Bells and Whistles"**
- **Enable Innovation through Application of Technology**
- **Limit Expectations Conservatively**
- **Plan for a Learning Curve before Seeing Significant Efficiency Improvements**

Student Notes:

Completing Plan Coordination for Approval

- **Remember PSP Approval Authority Is Task Dependent**
- **Coordinate Internally (within Project Team), First Moving outward to Selected Agency and Then to OGA Participants Identified in the Plan**
- **Maintain Configuration Control, which Is Critical in the Coordination Process**
- **Designate Someone to Execute Central Clearinghouse Functional Responsibility**
  - **Minor Changes - Pen and Ink Only, No Re-coordination Required**
  - **Major Changes - Requires Complete Re-coordination**

Student Notes:

Summary

- **Building the PSP is a process.**

- **People build the PSP; choose the best and empower them to do the job.**

- **The team is central in the process and must be supported.**

- **The team must avoid the temptation to shortcut the process through reuse and rehash of prior work.**

Student Notes:

Preparation for Next Lesson

- **Review IO3 Jupiter Moon Orbiter PSP Again**

- **Review Project Draft SOW**

- **Identify Any Prior or Ongoing Relevant NASA-related Efforts**

- **Understand Project Manager's Desired Approach**

Student Notes:

Establishing the Surveillance Strategy

Performance-based Contracting Initiative
IBT Lesson 4

Prepared for NASA
by OPM and BDM Federal, Inc.

November 1996

Student Notes:

Introduction

- **Strategy is essential to reach a common understanding of intent, process, priority, and general method of project execution.**

- **Activities are the physical manifestation of performance surveillance.**

- **Together, they lay the foundation for project surveillance operations.**

Student Notes:

Learning Objective

- **At the end of this lesson, the workshop participant will be able to *identify appropriate strategies* for accomplishing contractor performance surveillance given conditions of project performance and outcome requirements, contractor's past performance, agency prior experience, and contract type selection.**

Student Notes:

Review of Past Lesson

- **Building the PSP is a process.**

- **People build the PSP; they must be the best available and have the authority and commensurate responsibility for their results.**

- **The team is central in the process. These people are responsible for the following:**
  - **Specifying Surveillance Strategy, Activities, and Metrics**
  - **Estimating Resource Requirements**
  - **Proposing a Project Organization and Identifying Responsibilities**
  - **Completing Plan Coordination for Approval**

Student Notes:

Overview

- **Creating Strategies for Surveillance**
  - **Definition of a Strategy**
  - **Factors to Consider**
  - **Relationship of Surveillance Strategies**
  - **Example Types of Surveillance Strategies**
  - **Methods for Selecting Strategies**
  - **Basic Principles of Surveillance Activities**

Student Notes:

Definition of Strategy

- **Plan of action that organizes efforts to achieve objectives**

- **Reflection of a *decision-making process* that connects the ends with the ways and means of achieving those ends**

Student Notes:

Surveillance Strategy

- **A *surveillance strategy* describes the following in broad terms:**
  - **Expected Outcomes from Surveillance**
  - **Management Policy Guiding Surveillance**
  - **Coordination of Resources and Activities to Provide Adequate Surveillance**
  - **Methods Used to Conduct Surveillance**

Student Notes:

Creating a Strategy for Surveillance
Factors to Consider

- **Project Objectives**
- **Project Risk**
- **Past Experience**
- **Known Issues**
- **Contract Form**
- **Contractor Experience**
- **Project Team**

Safety and Mission Assurance Training

JR-R2-6242-B408

Slide #4-8

Student Notes:

Strategy - Consistent with Policy

- **Project strategies should be crafted to reflect policy initiatives.**

- **Current NASA policies will affect strategy formulation:**
  - **PBC - "Insight," "Pay for Performance"**
  - **Advanced Quality Systems - Benchmarked, "World Class" Technical and Management Approaches**
  - **ISO 9000 Adaptation for Quality**

Student Notes:

Top Level - Define Ends

- **General Objectives of Surveillance**
  - Assure On-time Task Completion
  - Verify Performance Attainment
  - Maintain Cost Control
  - Confirm Quality Outputs
  - Provide Safety During Execution

Student Notes:

Mid Level - Define Means

- **Identify Surveillance Approaches**
    - **Reliance on Oversight/Insight**
    - **Balance between Assurance and Verification**
    - **Role of Communications**
    - **Life Cycle Surveillance Relationship**
    - **Resource Use**
    - **Issue Resolution/Risk Reduction Approach**

Student Notes:

Base Level - Define Style

- **Explain Task Surveillance Method**
  - **Consideration of the Task**
    - **Risk**
    - **Complexity**
    - **Criticality**
  - **Consideration of the Means to Execute**
    - **Funding**
    - **Contract**
    - **Contractor Experience**

Student Notes:

Examples of Surveillance Strategies

- **Oversight Strategy**
  - **Contractor performance must be directly monitored and corrected.**
  - **Work is "overseen" by in-line performance monitors, and results must be inspected to assure correct results were achieved.**
- **Insight Strategy**
  - **Contractor performance is monitored using non-intrusive, off-line methods.**
  - **Contractor performs work independently to achieve compliant results; results are sampled selectively for verification purposes only.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Outcome-focused Strategy**
  - **The only result that counts is obtaining the performance required by contract.**
  - **Processes and procedures are important, but mostly the contractor should do what works.**
- **Incentive-driven Strategy**
  - **Contractor performance can be shaped by application of selected financial incentives.**
  - **Level of performance (quality and quantity) is directly proportional to the level of financial incentives provided to the firm and its workers.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Procedure Compliance Strategy**
  - **Contractor must rigorously follow established procedures to achieve outcome.**
  - **If right procedures are followed, the right results will happen automatically; surveillance is focused on procedures and their use.**

> **Procedure Compliance Strategy Example:**
> **EPA-approved HAZMAT Handling Procedures Specified as Mandatory for Hydrazine Recycling Contract; Contractor's Performance Measurement and Incentive Based on No-notice, Random Inspections by NASA.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Issue-resolution-focused Strategy**
  - **The existing processes will come close to the desired outcomes, but some critical issues must be resolved to assure success**
  - **Proactively resolving the most critical issues will allow successful completion of the project.**

> **Issue-resolution-focused Strategy Example:**
> **Contractor Performance Partially Evaluated on the Resolution of Continuing Adverse Environmental Impact Issues in the SRM Testing; Contractor to Use Novel Motor Exhaust Collection and High-volume Scrubber Technologies.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Risk Reduction Strategy**
  - **After assessment of the potential risks to project completion, management proactively focuses discretionary activities towards reducing overall risk factors.**
  - **Management actions focus on reducing probability of unfavorable outcome occurring and/or reducing the negative impact if it does occur.**

  > **Risk Reduction Strategy Example:**
  > **Rank Order Program Risks for Pegasus Development, Focus Surveillance Program Activities on Failure Mitigation Approach for Top 20 Risks, Collection Information, Re-evaluate and Re-rank Periodically.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Centralized Plan Strategy**
    - **Direction comes from a rigid, scientifically optimized plan relying on centralized allocation of resources, detailed planning of work activities, and strict plan compliance during execution.**
    - **Management assures the plan is followed without deviation.**

> **Centralized Plan Strategy Example:**
> **Develop Detailed Plan and Schedule for "Commercial" Use of Delta Launchers to Orbit Synchronous Communications Satellites; Contract with Space Center Operations Contractor Requires Execution of All Elements of the Plan without Deviation.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Minimal Surveillance Strategy**
    - **Project team provides minimal supervision and limited oversight activities of contractor progress.**
    - **Limited surveillance is frequently used in the following situations:**
        - **The contractor's experience in the task is extensive.**
        - **Past performance met all requirements.**
        - **Project management staff is highly experienced.**
        - **Project dollar value is low.**
        - **The work itself is low risk.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Management-by-Exception Strategy**
  - **Surveillance is tailored using risk as a prime measure for attention.**
  - **Surveillance assumes that the contractor knows how to accomplish the task without oversight.**
  - **Management actions and intervention are exclusively limited to "problem" areas.**
  - **Strategy used frequently in the following situations:**
    - **Project is low risk.**
    - **Project Manager is monitoring multiple projects.**
    - **Progress to date indicates general contractor competency and results meet requirements.**

Student Notes:

Examples of Surveillance Strategies (Continued)

- **Close Surveillance Strategy**
  - **Significant actions and decisions are scrutinized by a central decision maker for approval prior to execution.**
  - **Surveillance requires monitoring many detailed dimensions simultaneously and being closely involved in all aspects of the project.**
  - **Strategy used frequently in the following situations:**
    - **Risk is high.**
    - **Experience base of the contractor is lower than normal.**
    - **Project dollar value is exceptional.**
    - **A prior record of repeated failures exists.**

Student Notes:

Examples of Surveillance Strategies (Concluded)

- **Pre-emptory Monitoring Strategy**
    - **Surveillance is tailored to rely heavily on metrics indicators.**
    - **Surveillance assumes that the contractor will probably encounter problems that could be anticipated if specific conditions are monitored using analysis techniques.**
    - **Management monitors "key indicators" and takes proactive corrective actions to correct potentially "non-compliant" performance trends.**
    - **Strategy used frequently in the following situations:**
        - **Risk is moderate.**
        - **Contractor team is experienced, but product is new.**
        - **Task is complex with tight coupling between tasks.**

Student Notes:

Special Case: Issue-driven Strategy

NASA

- **Issues that are critical to project success are explicitly identified and prioritized as a means for management to focus discretionary surveillance.**
- **Pros:**
  - **Provides an Up-front, Balanced Assessment to Identify and Rank Project-wide Issues**
  - **Allows Issue "Work-off"**
  - **Explicitly States What Is Important**
- **Cons:**
  - **May Allow Blind-siding (Unknown Unknowns)**
  - **May Use Inappropriate Method of Identifying Priority of Issues**
  - **Requires Discipline and Up-front Investment**

Student Notes:

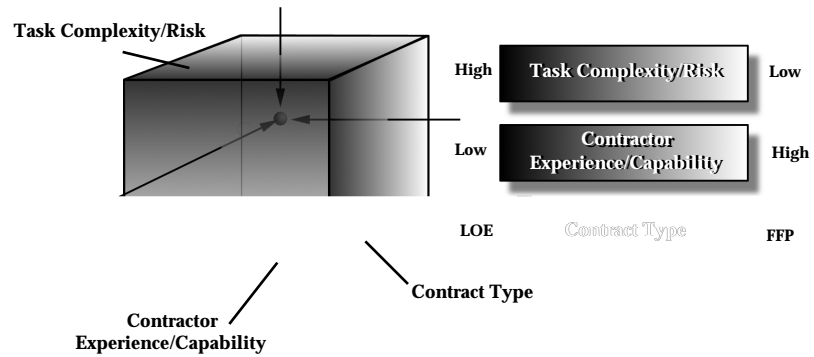## Special Case: Issue-driven Strategy (Concluded)

- **Balancing top-level issue importance is critical (some things are simply more important than others).**
    - **Related to Mission Objectives**
    - **Socioeconomic Objectives**
    - **Outside Organization Objectives**
- **Many potential prioritization schemes are available:**
    - **Risk - Probability of Occurrence Crossed with Dollar/Mission Impact**
    - **Pareto - Identify Key "Drivers" That Contribute to Process and Product Variability**
    - **Dollar - Priority Assigned by Level of Investment**
    - **Delphi - Rank Ordering Based on Past Experience**

Student Notes:

Methods for Selecting Strategies

Surveillance Style Selection

```
HIGH  ↑
      │   Hands-off                    Coach
      │   Observer
Contractor
Maturity/
Experience        Mentor
      │
      │   Directive          Participative
LOW   │   Manager            Leader (Teacher)
      └──────────────────────────────→
         LOW                    HIGH
              Task Complexity
```
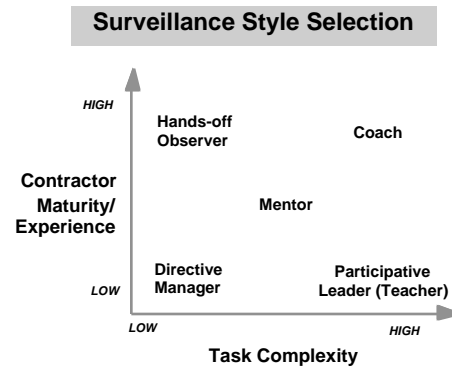
Student Notes:

Student Notes:

Summary

- **Careful craftsmanship is needed in the creation of a complementary set of strategies that will define an approach and style that match the means to the ends.**

- **Using a complexity-skill-contract type matrix approach, if tempered by insight and experience, is useful to define a coherent strategy to project surveillance.**

- **Strategy drives the subsequent identification of supporting activities and metrics.**

Student Notes:

Determining Surveillance Activities

Performance-based Contracting Initiative
IBT Lesson 4A

Prepared for NASA
by OPM and BDM Federal, Inc.

October 1996

Student Notes:

Insights for Planning Surveillance Activities

… The materials of action are variable, but
the use we make of them should be
constant.
                                    Epictetus, circa 60 A.D.

… And vice sometimes by action dignified.
                                    William Shakespeare,
                                    Romeo and Juliet

Student Notes:

Learning Objective

- **The workshop participant will be able to *select effective surveillance activities* to monitor contractor performance using an insight-focused surveillance approach considering project strategy, contractual requirements and deliverables, and value-added nature of the activity.**

Student Notes:

Overview

- **Basic Principles of Surveillance Activities**
- **Specifying Surveillance Activities**
  - **Communications**
  - **Assurance**
  - **Verification**
- **Areas of Surveillance Activity Application**
- **Checklist for Specifying Surveillance Activities**
- **Identifying and Constraining Surveillance Activities**

Student Notes:

Basic Principles of Surveillance Activities

- **Activities flow directly from strategy decisions.**
  - **Performance Monitoring - Insight-producing Activities**
  - **Oversight Activities**
  - **Issue-resolution Activities**
  - **Risk-mitigating Activities**
- **Activities change to meet project life-cycle needs and demonstrated contractor performance.**
- **Activities require a dedicated resource commitment:**
  - **NASA Matrix Resources**
  - **Project Team Resources**
  - **Other Governmental Agency Matrix Resources**
- **Activities must add value.**

Student Notes:

Specifying Surveillance Activities

- **Communications**
  - **Formal**
  - **Informal**
- **Assurance**
  - **Reviews and Evaluation**
  - **Audits**
- **Product Performance Verification**
  - **Inspection**
  - **Test and Analysis**

Student Notes:

Communications Activities

- **Communication activities provide the backbone for the project.**
    - **Promote Open Transfer of Information between All Project Entities**
    - **Document Satisfaction of Contractual Requirements**
    - **Provide Evidence of Compliant Performance**
    - **Coordinate All Other Surveillance Activities**
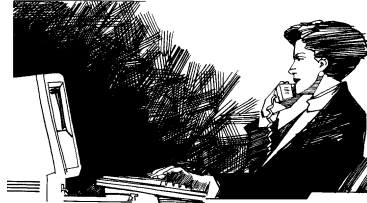
> *Communication is essential for building and maintaining a trusting relationship between the contractor and the Government agency.*

Student Notes:

Examples of Surveillance-related Written Communications Activities

- **From Contractor to NASA**
  - **Plans**
    - Quality Assurance Plans
    - Reliability Program Plan
    - Safety Plans
    - Manufacturing Inspection
    - Personnel Training Plans
    - Verification/Test Plans
    - Waiver Requests
  - **Procedures/Processes Documents**
  - **Design Documents**
  - **Reports**
    - Project Status
    - Performance Assurance Status
    - Compliance Satisfaction
    - Test/Analysis Results
    - Audit/Verification Results

- **From NASA to Contractor**
  - **Letters**
    - Formal Acceptance of Deliverable Items
    - Non-Conformance Notification
    - Performance Feedback - Incentive Awards
    - Directive Action
  - **Reports**
    - Independent Evaluation Results
    - Audit/Verfication Results

Student Notes:

Examples of Surveillance-related Oral Communications Activities

- **Between Contractor and NASA**
  - **Periodic Scheduled Formal Briefings/Conferences**
  - **Informal Telephone Calls**
  - **Informal Verbal Inquiries**
  - **Ad hoc Discussions/Briefings**
  - **Purposes include:**
    - **Gathering/Sharing Information**
    - **Providing Insights, Advice, Direction**
    - **Providing Instruction/Training**

- **Between NASA, OGAs, and Team Members**
  - **Informal Telephone Calls**
  - **Informal Verbal Inquiries**
  - **Ad hoc Discussions/Briefings**
  - **Purposes include:**
    - **Coordinating Activities**
    - **Sharing Information, Making Inquiries**
    - **Providing Insights, Advice, Direction**
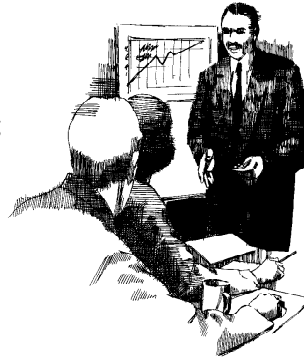
Student Notes:

Assurance Activities

- **Assurance activities are intended to provide the Government confidence in the following:**
  - **The processes used by the contractor will result in products that meet stated requirements.**
  - **The processes and procedures used by the contractor are in compliance with conditions set by the contract.**
  - **The processes and procedures used by the contractor enable performance non-compliance to be identified and corrected prior to delivery of the product or services to the Government.**

Student Notes:

Examples of Assurance Activities

- **Reviews and Evaluation**
  - **Preliminary Design Review**
  - **Critical Design Review**
  - **Electrical Packaging Reviews**
  - **Phased Safety Review**
  - **Configuration Management/ Engineering Change Proposal Review**
  - **Material Review**
  - **Failure Review**
  - **Software Requirements/Preliminary Design Review**
  - **Software Critical Design Review**
  - **Software Independent Verification and Validation (IV&V)**
  - **Flight Readiness Review**
  - **In-Process Project Review**

Student Notes:

Examples of Assurance Activities (Concluded)

- **Audits**

  - **Subcontractor and Supplier Compliance Audits**

  - **Fabrication and Assembly Procedure Compliance Audit**

  - **Electrostatic Discharge Program Audit**

  - **Procurement Procedures Audits**

Student Notes:

Performance Verification Activities

- **Performance verification activities demonstrate the following to the Government:**
  - **The essential performance characteristics of the product or service satisfy contractual requirements for the following:**
    - **Functional Performance**
    - **Dimensioning and Weight**
    - **Interface Performance**
    - **Quality**
    - **Reliability**
    - **Maintainability**
    - **Availability**
    - **Data Accuracy and Completeness**
  - **The proper quantity of product has been delivered.**
  - **Delivery of acceptable product was on time and at the place specified.**

Student Notes:

Examples of Performance Verification Activities

- **Inspection**
    - **Mandatory Government Inspection Points**
    - **Material Source Inspections**
    - **Facility Inspections**
    - **Configuration Control Verification (as built-as designed)**
    - **Hazard Control Verification**
    - **Off-the-shelf Hardware Inspection**
    - **Fastener Inspection**
    - **Government Acceptance Inspection**
    - **Software Walk-through Inspection**
    - **Fabrication Inspection**
    - **Software Functional Configuration Audit/Physical Configuration Audit**

Student Notes:

Examples of Performance Verification Activities (Continued)

- **Analysis**
  - **Destructive Physical Analysis**
  - **Radiation Hardness**
  - **Failure Mode Estimation and Criticality Analysis**
  - **Parts Stress Analysis**
  - **Worst Case Analysis**
  - **Safety Plan Adequacy Analysis**
  - **Trend Analysis**

Student Notes:

Examples of Performance Verification Activities (Concluded)

- **Testing**
    - **Mechanical Shock and Function Tests**
    - **Electrical Function Interface Tests**
    - **Comprehensive/Limited Performance Tests**
    - **End-to-end Tests**
    - **Failure-Free Performance Testing**
    - **Life Test**
    - **Load and Shock Test**

    - **Vibro-acoustics Test**
    - **Thermal Vacuum Qualification**
    - **Electro-magnetic Compatibility Qualification**
    - **Environmental (Temperature/Humidity) Qualification**
    - **Pressure Profile Qualification**
    - **Leakage Test**
    - **Fastener Material Test**
    - **Purchased Raw Materials Compliance Test**
    - **Software Test**

Student Notes:

Areas of Surveillance Activity Application

- **General Project Health Monitoring**

- **Verification of Contract Obligation Satisfaction**

- **Critical Issue Resolution Verification**

- **Risk Reduction Verification**

Student Notes:

Checklist for Specifying Surveillance Activities

☑ **Description of the Activity**

☑ **Purpose of the Activity**

☑ **Frequency of the Activity**

☑ **Duration of the Activity**

☑ **Magnitude of the Activity**

☑ **Resource Requirements for the Activity**
> **Number of People, Special Skills, Travel/TDY Duration**
> **Laboratories, Test Centers, ADP Equipment, etc.**
> **Estimated Expense per Activity Repetition**

☑ **Necessary Preconditions for the Activity**

☑ **Expected Benefit from the Activity**

Student Notes:

Identifying and Constraining Surveillance Activities

- **HQ Insight Activities**

- **Center Insight Activities**

- **Project Management Activities**

- **DCMC Acceptance Activities**

- **Projected Cost Impact of Activities**

Student Notes:

Summary

- **Activities are planned to add value and assure continuing insight into the contractor's performance or resolve critical issues.**

- **Activities must be tailored to meet project life-cycle requirements and not place NASA routinely into an in-line contractor process.**

- **A PBC-type approach generally constrains NASA surveillance to allow reduced project staff while providing necessary levels of performance assurance and product verification.**

Student Notes:

Student Laboratory - Determining Surveillance Activities

Performance-based Contracting Initiative
IBT Lesson 5

Prepared for NASA
by OPM and BDM Federal, Inc.

November 1996

Student Notes:

Introduction

Student Notes:

Review of Past Lesson

- Strategy defines the policy, "Ends-Means," and management approach.

- Activities specify what will be done to accomplish the strategy.

- Activities are planned to add value and assure continuing insight into the contractor's performance or resolve critical issues.

- Activities must be tailored to meet project life-cycle requirements and not routinely place NASA into an in-line contractor process.

Safety and Mission Assurance Training

JR-R1-6242-B503
Slide # 5-3

Student Notes:

Learning Objectives

- **The workshop participant will demonstrate the ability to work collaboratively to accomplish the following:**
  - *Identify effective surveillance activities* to monitor contractor performance using a PBC-compliant surveillance approach considering project strategy, contractual requirements and deliverables, and value-added nature of the activity

Student Notes:

Task Assignment

- **Review Project Surveillance Strategy**

- **Identify Specific Project Surveillance Activities**

- **Prepare for Presentation to Class**

- **Apply PBC Values and Approach**

Student Notes:

PSP Authoring Team Assignment Confirmation

Team Assignments	Breakout Areas
Team A_____ _____	Team A_____ _____
Team B_____ _____	Team B_____ _____
Team C_____ _____	Team C_____ _____
Team D_____ _____	Team D_____ _____

Student Notes:

Student Resources Review

- **Breakout Rooms**
  - Easel-pads
  - Notepaper

- **Student Handouts**
  - Worksheet (Use One Worksheet per Activity)
  - Sample PSP

Student Notes:

**Surveillance Activity
Definition Worksheet**

Student Notes:

Suggested Team Working Arrangements

- **Employ a Guided Team Approach**
  - **Facilitator: Works for Instructor**
  - **Recorder: Records Key Ideas (not Secretary)**
  - **Time Keeper: Keeps Eye on Clock**
- **Set an Agenda (Topic, Time, Leader) and Keep It**
- **Mix Group and Individual Tasks**
- **Prepare Briefing Materials**

Student Notes:

Team Presentations and Critique

- **Describe Essential Background Factors**
- **Identify Selected Surveillance Activities**
- **Conduct Class Member Critique**

Student Notes:

Preparation for Next Lesson

- **Review Critical Issues**

- **Identify Ways of Monitoring Issues**

- **Identify Potential Metrics to Measure Performance**
  - **Data Source**
  - **Frequency of Collection**
  - **Means of Analysis**

- **Identify What Constitutes Acceptable Limits**

- **What if Performance Lies Outside Limits?**

Student Notes:

Strategy Formation Worksheet

I. Level of Strategy: ❑ **Policy**
                    ❑ **Resource and Activity Coordination**
                    ❑ **Execution Processes**

II. Strategy Articulation: _____

_____

_____

_____

III. Supports which higher level objective/strategy? _____

_____

_____

_____

IV. This strategy is applicable to which phases of the project/contract life cycle?

_____

_____

V. What prior issues will this strategy resolve? _____

_____

_____

VI. How does this strategy add value to the project management process? Have you any evidence to support this claim? Describe. (optional)

Strategy - Activity Flowdown Worksheet

$\wedge$

POLICY

/ \

**Resource and Policy
Coordination**

/‾‾‾‾‾‾‾‾‾‾‾\

Execution/Activities
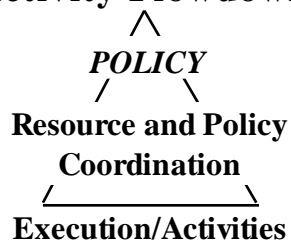
I. Policy Strategy: _____

_____

II. Supporting Resource and Activity Coordination Strategies_____

_____

_____

_____

_____

III. Supporting Surveillance Execution Process or Surveillance Activities:

_____

_____

_____

_____

_____

_____

Activity Definition Worksheet

Activity Description: _____

_____

Purpose: _____

Supported Strategy: _____

Expected Benefit: _____

Frequency: _____

Duration: _____

Extent of Activity (locations): _____

Estimated Resource Requirements

Expense Category	Work Years	Expense
NASA Personnel		
Other Government Agency		
Support Contractor		
Materials and Facilities		
Totals		

Strategy - Background Analysis

Expected Contract Type _____

How is the contract incentive structured? _____

Describe NASA's technology background for this project.

❑   **First Time Technology Demonstrated**   ❑   **Proven Technology**

❑   **New Application of Demonstrated Technology**   ❑   **Incremental Improvement Only**

❑   **Previously Demonstrated, but Still New**   ❑   **Major Revision/Upgrade**

Remarks: _____

_____

NASA project management background for this project:

❑ **Inexperienced PM**   ❑ **Uncertain Team Organization**   ❑ **First-ever PBC**

❑ **Limited Experience PM**   ❑ **Matrixed Team Organization**   ❑ **Limited PBC Experience**

❑ **Seasoned PM**   ❑ **Dedicated Project Team**   ❑ **Extensive PBC Experience**

Remarks: _____

_____

Expected Project Issues: _____

_____

_____

_____

Project Risk Potential: (1 - low; 5 - high)

Funding Stability	❑	**Complexity**	❑
Technology Maturity	❑	**Contractor Base Capability**	❑
Cost Realism	❑	**Schedule Realism**	❑
Popularity	❑	**Excitement Factor**	❑

Surveillance Activity Definition Worksheet

(complete 1 sheet for each activity)

Activity Description: _____

_____

Type of Activity: ☐ **Communication** ☐ **Verification**
☐ **Assurance**

Purpose: _____

Expected Benefit: _____

Frequency: _____

Duration: _____

Scope of Activity: _____

Estimated Resource Requirements

Expense Category	Work Years	Expense
NASA Personnel		
Other Govt. Agency		
Support Contractor		
Materials & Facilities		
Totals		

10/21/96

Project Surveillance Strategy - Background Analysis

Expected Contract Type: _____

How is the Contract Incentive Structured? _____

_____

Describe NASA's Technology Background for this Project.

- ❑ **First Time Technology Demonstrated**   ❑ **Proven Technology**
- ❑ **New Application of Demonstrated Technology**   ❑ **Incremental Improvement Only**
- ❑ **Previously Demonstrated, but still new**   ❑ **Major Revision / Upgrade**

Remarks: _____

_____

NASA Project Management Background for this Project:

❑ **Inexperienced PM**	❑ **Uncertain Team Organization**	❑ **First ever PBC**
❑ **Limited Experience PM**	❑ **Matrixed Team Organization**	❑ **Limited PBC Experience**
❑ **Seasoned PM**	❑ **Dedicated Project Team**	❑ **Extensive PBC Experience**

Remarks: _____

_____

Expected Project Issues: _____
_____
_____
_____

Project Risk Potential: (1 - low; 5 - high)

Funding Stability	☐	**Complexity**	☐
Technology Maturity	☐	**Contractor Base Capability**	☐
Cost Realism	☐	**Schedule Realism**	☐
Popularity	☐	**Excitement Factor**	☐

Strategy Formation Worksheet

I. Identify the primary Policy Guidance / Directives /Initiative applicable to this Project.

_____

_____

_____

_____

II. What are the general outcomes expected from surveillance of the contractor's efforts?

_____

_____

_____

_____

_____

_____

III. What means will you use to assure Policy Compliance / Satisfaction?

_____

_____

_____

_____

_____

_____

IV. What means will you use to assure that desired surveillance outcomes happen?

_____

_____

_____

_____

_____

_____

_____

Strategy Formation Worksheet (2)

V. What means will you use to deal with historical problems?

_____
_____
_____
_____
_____

VI. What means will you use to manage project risk?

_____
_____
_____
_____
_____

VII. Explain how you will change your strategy / approach over the project life cycle

_____
_____
_____
_____

VIII. Which of these strategies reflect known "best of class" benchmarked approaches to assuring high quality outcomes?

_____
_____
_____
_____

Strategy Formation Worksheet (3)

Summarize your surveillance strategy in 2 paragraphs or less

Establishing Performance Metrics for Project Surveillance

Performance-based Contracting Initiative
IBT Lesson 6

Prepared for NASA
by OPM and BDM Federal, Inc.
November 1996

Student Notes:

Review of Past Lesson

- **Strategy - Guiding Principles**

- **Activities**
  - **Communications**
  - **Assurance**
  - **Verification**

Student Notes:

Introduction

"The essence of management is that one cannot manage that which one cannot measure" - **Scott Sink and Thomas Tuttle**

(Planning and Management in Your Organization of the Future, 1989)

Student Notes:

Learning Objectives

- **At the end of this module, the student will have the knowledge needed to develop a selection of metrics for the Project Surveillance Plan (PSP) that supports the NASA Project Management business process by measuring key characteristic performance:**
  - **The student will comprehend the standard structure used within the PSP to define metrics, their utility, and their value.**
  - **The student will comprehend the concept of performance control limits for metrics monitoring and their relationship to performance-based contracting initiatives.**

Student Notes:

Overview

- **Metrics Explained**

- **Use of Metrics in Performance-based Contracting**

- **Documenting Metrics in the Project Surveillance Plan (PSP)**

- **Metrics Integrated into Management Processes**

Student Notes:

Why Are Metrics Necessary?

- **Metrics are an essential basis for modern industrial management.**

- **Metrics are used for the following purposes:**
  - **Assessing Performance**
  - **Announcing What Is Important**
    - **"What is measured is what people pay attention to..."**
      Tom Peters - Thriving on Chaos (1989)
  - **Deciding Resource Allocation**
  - **Providing Feedback**

Student Notes:

Defining Characteristics of Metrics

- **Performance Metrics "Shoulds":**
  - **They should be derived from strategy.**
  - **They should be developed for activities and business processes.**
  - **They should be dynamic, keeping pace with changes in strategies, processes, and the competitive environment.**
  - **They should be developed with a team approach.**

    Scott Adams, *et al.*, "The Development of Strategic Performance Metrics," *Engineering Management Journal*, Vol. 7, No. 1, March 1995

Student Notes:

Elements of Effective Metric Systems

NASA

- **Hallmarks of Effective Metric Systems:**
  - **System can be used for any size organization, from nations to individuals.**
  - **System incorporates comparison to benchmarks or "best-of-breed."**
  - **System can be defined to the specific vision of the measured organization.**
  - **System quickly and visually portrays progress over time, showing prime constraints and overall health.**

    Nancy Lee Hutchin, "Thriving on Change - Measure for Measure," *Enterprise Engineering*, Vol. III, Issue No. 6, July 1996

Student Notes:

Use of Metrics in Performance-based Contracting

- **Performance-based contracting focuses on the attainment of defined performances.**
  - **Metrics assess the level of attainment of defined performances.**
  - **Measurement can be used to not only monitor but also focus elements of contractor performance.**
- **In the management of PBC contracts, metrics provide predictive performance measurement and a performance feedback mechanism.**
- **Objective performance metrics provide an incontrovertible basis for incentivization.**

Student Notes:

Use of Metrics in Performance-based Contracting (Concluded)

- **Metrics collection over time can be used to develop longer term performance and evaluation tools.**
  - Contractor Past Performance as Basis for New Awards
  - Best Value Contracting Data Bases
  - Cost of Quality
  - Baselined Process/Product Performance
- **Trend towards standardization of metrics in the aerospace industry supports other efficiency incentives.**
  - Single Block Change
  - Advanced Quality Systems

Student Notes:

Documenting Metrics in the Project Surveillance Plan – Overview

- **Metric Types**
- **Metric Description**
  - Selecting Key Characteristic, Activity, or Issue to be Measured
  - Expectations for Insight
- **Metric Data Sources and Processes**
  - Periodicity/Rate of Data Collection/Sampling
  - Method of Data Analysis/Processing
- **Control Limits**
  - Control Limit Justification
  - Impact if Control Limits are not in Conformance
- **Presentation of Metric Information**

Student Notes:

Metric Types

- **Objective Measures**
    - **Absolute Performance**
        - **Physical Characteristics**
        - **Velocity/Rate**
        - **Rate of Change (Acceleration)**
        - **Spot/Static Observation**
        - **Sample Observation**
    - **Relative Performance**
        - **Compare Prior Performance of Same Item**
        - **Compare to Performance of Other Similar Items**
        - **Compare to Benchmarks**
    - **Effectiveness of Performance**
        - **Determines if Action Accomplishes Intended Objective**
    - **Efficiency of Performance**
        - **Measures Translation of Input to Output Product**

Student Notes:

Metric Types (Concluded)

- **Subjective Measures**
  - **Formal**
    - **Survey of Opinion**
    - **Survey of Satisfaction**
    - **Survey of Expectation**
  - **Informal**
    - **Anecdotes**
    - **Personal Intuition**
    - **Comparison to Past Experiences**

Student Notes:

Selecting What to Measure

- **Virtually everything can be measured in some way; however, measuring everything is not necessarily worthwhile.**
- **Insight-based monitoring requires selective use of "information-rich" metrics:**
  - **Captures Multiple Attributes of Performance in Multiple Areas**
  - **Reflects Effectiveness of Efforts**
  - **Includes General Efficiency of Resource Use**
  - **Resolves Key Issues ("Show Stoppers")**
- **Metrics should be few enough in number, but high enough in information content that performance insights are readily available .**

Student Notes:

Selecting What Things to Measure (Concluded)

- **High-quality metrics go to the heart of total performance and may include measures of the following:**
  - **"Key Characteristics" Conformance**
    - **Every piece, part, component, and process of the contracted effort has a set of "key characteristics" that define its essential fit, form, and function.**
      - **Characteristics of the end product or results may have been defined in the requirements process.**
      - **Characteristics of the processes used by the contractor probably have not been defined.**
      - **Metrics assessing conformance describe "how well" key characteristics have been satisfied.**
  - **Process Efficiency**
  - **Effectiveness**

Student Notes:

Potential Metric Areas for Insight Monitoring of Contractor Performance

- **Metric Areas may include the following:**
  - **Program Health**
    - **Attainment of Objectives**
    - **Use of Resources**
    - **Attainment of Planned Schedule/Critical Path**
    - **Impact on Other Related Programs/Projects**
  - **Issues Resolution Status**
  - **Project Risk Assessment**

Student Notes:

Metric Data Sources and Processes

- **Use of Non-intrusive Data Collection Methods Encouraged by PBC**
- **Consider Using Data Being Generated by the Contractor's Project Management System**
  - **Open Access to Elements of MIS Being Offered by Some Contractors**
  - **Block Modification Initiative May Lead to Common Project Metrics for all Government Projects at a Contractor Facility**
- **Some Data Should be Government-generated as a Result of Planned Activities**
  - **Product Verification Results**
  - **Assurance Items Resolved**
  - **Projected Contractor Performance Attainment**

Student Notes:

Metric Data Sources and Processes (Concluded)

- **Data acquisition process issues may include the following:**
  - Information Currency
  - Information Accuracy
  - Information Verification
  - Data Description/Data Element Stability
  - Government Access to Raw Data
  - Use of Interpreted Data
  - Data Formats
  - Use of Contractor Data as Basis for Incentive Award
- **Process of data acquisition process dovetails with descriptions of PSP surveillance team responsibilities.**

Student Notes:

Defining Control Limits

- **"How do you know you're doing well if you don't define up front what doing well means?"**

  Phil Bernard, CEO B-K Dynamics, Inc.

- **Define "Doing Well" with Control Limits**
  - **Set Performance Objectives**
    - **Minimum Acceptable Performance**
    - **Objective Performance**
  - **Determine if Performance Objectives Will Change over Time**
    - **Learning Curve**
    - **Pre-planned Process Improvement**
    - **Technology Infusion**

Student Notes:

Sources of Performance Objectives

- **Sources of defined key characteristics with their performance objectives may include the following:**
    - **Project Requirements Documents**
    - **Derived Engineering Analysis**
        - **Performance Requirements Flowdown (Allocated Performance Baseline)**
- **Process metrics that link to key characteristics may be found in the following:**
    - **Benchmark Data Bases**
    - **Internal Business Directives**
    - **Regulatory/Law-based Requirements**
    - **Industry Standards (Used in Job Estimation)**

Student Notes:

Setting Control Limits

- **Types of Potential Limits**
  - **Absolute Limits - Prior Knowledge, Experience, or Key Characteristic Used to Create "Hard Limits"**
    - **Single Sided**
    - **Double Sided**
  - **Approach Limits - Fuzzy Logic Based**
  - **Performance-induced Limits - Often Used When no Prior Knowledge or Experience in Process**
    - **Statistical Sliding Period Standard Deviation Limits**
    - **"Best" Performance to Date**
  - **Seasonal Limits**
  - **Statistical Data - "6 Sigma" Limits**

Student Notes:

Specifying Data Needs

- **Metrics require accurate data to measure performance. (Data does not equal information.)**
- **Traditionally, contractor-provided data requirements and specifications are often called out in the Contract Data Requirements List (CDRL) and the referenced standard Data Item Definition (DID)**
  - **PBC and other related Government-wide initiatives are moving away from use of standardized DID specifications.**
  - **Data and rights to it may need to be negotiated separately as part of contract award, making PSP metrics identification critical.**
- **Data collection, storage, processing, and analysis are always an expense to someone.**
  - **Select data requirements carefully and limit to essential items.**
  - **Proprietary data often have additional "hidden" costs.**

Student Notes:

Presentation of Metric Information

- **Simple and intuitive presentations work best.**
  - Clear Legends and Axes
  - Well-chosen Colors
  - Easy-to-Grasp, Telegraphed Message

- **The presentation should fit the nature of the information.**

- **Use the appropriate display format for representative data types.**
  - Time Series: Bar Chart, Line Chart
  - Static Percentages: Pie Chart
  - Status: Stoplight Chart
  - Correlation: Scatter Chart with Correlation/ Trend Function Graphed
  - Multi-variable Response: 3-D Response Surface

- **Modern computer tools make it easy to create very good or very poor graphics.**
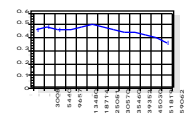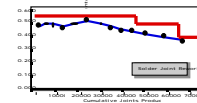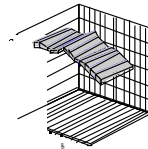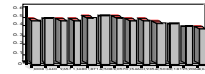
Student Notes:

Establishing the Management Control Process

- **Fit management control process to the strategy and task; tailor controls/thresholds by project phase or demonstrated contractor competence.**

- **Use hard data focusing on objectively measured performance.**

- **Management control processes can be general or specific for individual or grouped critical performance metrics.**

- **Control limits/thresholds provide an initial consensus for level of acceptable performance.**

Student Notes:

Establishing the Management Control Process (Concluded)

- **Articulation of the process brings clarity to all involved and prevents miscues and misunderstanding due to faulty assumption or change in management personnel.**

- **Project performance metrics review should be integrated with surveillance assurance and communications activities.**
  - **Provides Opportunity for Formal Performance Feedback**
  - **Allows Discussion of Trends**
  - **Focuses Future Activities**

Student Notes:

Management Response to Non-Conformance

- **Articulate how Project Management will respond when contractor performance fails to meet levels agreed upon.**
- **Approaches may include the following:**
  - **Project Manager Formal Review**
  - **Corrective Process Action Team**
  - **Financial Disincentive/Progress Payment Withholding**
  - **Stop-work Action**
- **Graduated response provides opportunity for restrained reaction to thoughtful mistakes, yet plainly requires substantive actions when project performance is out of control.**

Student Notes:

Summary

- **Metrics provide the essential quantitative basis for Performance-based Contracting.**

- **Metrics are not static entities and should be considered for revision when they fail to provide the insights needed or become an end in themselves.**

- **Detailed planning and integration of metrics selection, control limits, and management response with the surveillance strategy, activities, and contracting effort is required at the initiation of the contract.**

Student Notes:

Overview of Next Lesson

- **Create Own Project Metrics Using PSP Style Sheets**

- **Present to Class for Critique**

Student Notes:

Student Laboratory - Establishing Performance Metrics for Project Surveillance

Performance-based Contracting Initiative
IBT Lesson 7

Prepared for NASA
by OPM and BDM Federal, Inc.

November 1996

Student Notes:

Learning Objectives

- **In this module, the student team will demonstrate the ability to develop a selection of metrics for the PSP that supports the NASA Project Management business process by the following:**

  - **Using a Standard Structure to Define Metrics, Their Utility, and Their Value to Project Management**

  - **Developing Performance Control Limits for Metrics Monitoring and Their Relationship to Performance-based Contracting Initiatives**

  - **Proposing Performance Non-conformance Responses for Management**

Student Notes:

Review of Past Lessons

- **Definition of Metrics**
  - Measurement Used to Monitor and Control
  - Used for Predictive Estimation and Feedback Mechanism
  - Quantitatively Based - Objective or Subjective Values
- **Control Limits/Performance Threshold Concept**
- **Non-conformance Response by Management**
- **Review of Defined Strategy and Activities**

Student Notes:

Student Team Laboratory Tasking

- **Determine Project Metrics and Control Limits**

- **Specify Data Requirements**

- **Identify Data Processing and Evaluation**

- **Develop Metric Information Display**

- **Propose Non-conformance Response**

Student Notes:

Team Presentations and Critique

- **Present Selected Surveillance Metrics**
  - **Rationale/Benefit**
  - **Display**
  - **Control Limits**
  - **Non-conformance Response**
- **Conduct Peer Critique**

Student Notes:

Preview of Next Session

- **Project Surveillance Staff**
    - **Organization**
    - **Responsibilities**
- **Estimating Surveillance Resource Requirements**

Student Notes:

Creating the Project Surveillance Organization

Performance-based Contracting Initiative
IBT Lesson 8

Prepared for NASA
by OPM and BDM Federal, Inc.
November 1996

Student Notes:

Lesson Overview

- **Words of Insight**
  - **... Let us embrace, and from this very moment vow an eternal misery together.**

    Thomas Otway, 1651-1685

  - **"Speed, simplicity, and confidence." These are absolutely basic operating requirements for anyone - any size business - to make it through the next several years.**

    Nancy Austin - Co-author,
    "Passion for Excellence" quoting Jack Welch of General Electric

Student Notes:

Learning Objectives

- **At the end of this module, the student will have the knowledge needed to define the structure, participants, and responsibilities of a project performance surveillance team for the Project Surveillance Plan.**

    - **The student will comprehend the prototypical structure and proposed participants needed to conduct NASA project management surveillance processes and comply with formal legal and internal procedural requirements.**

    - **The student will be able to identify assigned responsibilities and authorities of the surveillance team participants.**

Student Notes:

Overview - Organizing for Insight Surveillance

- **Using Organizational Concepts that Lead to Success**

- **Deciding on Matrix Support or Project Staff for Continuing Surveillance Activities**

- **Choosing Government Agency or Support Contractor for Specialized Surveillance Activities**

- **Sizing the Organization and Estimating Resources**

- **Defining Project Surveillance Roles and Responsibilities**

Student Notes:

Using Organizational Concepts that Lead to Success

- **Dynamic Teams Organized for Specific Tasks**
- **Flat Project Organization**
- **Multi-disciplinary Teams Made of Insiders and Outsiders**
- **Clear Communication of Team Performance Expectations**
- **Empowered People with Tools and Resources to Do the Job**
- **Flexible Workspaces Tailored by the Team**
- **Spoils of Victory Shared by the Team**

From Tom Peters, *Thriving on Chaos*, 1993

Student Notes:

Staffing the Insight Organization

- **Organization must be lean, mean, and smart.**
- **Good people skills, team orientation, and a win-win attitude are absolutely essential traits.**
- **Talent is the only commodity that really matters:**
  - **Focus on Obtaining a Mixture of Complementary Skills**
  - **Matrix-out to Find Exceptional Performers**
- **Incentives should be provided for being a part of the team.**

Student Notes:

Sizing the Surveillance Organization

- **Size to Perform Specified Activities in a Manner Reflecting the Project Surveillance Strategy**
- **Accept that Available Financial Resources Will Always Be the Final Arbitrator**
- **Use a Mix that Has Both Permanent Project Staff and Temporary Matrix Support**
  - **Relative mix will depend on project environment and activity tasking duration and frequency.**

XYZ PROJECT
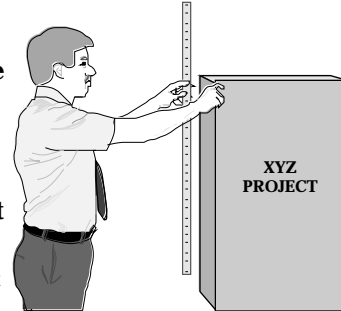
Student Notes:

Deciding on Matrix Support or Project Staff for Continuing Surveillance Activities

- **Matrix Support Staff**
  - **Use for Non-recurring or Limited-scope Special Tasks**
  - **Pro:**
    - **Inexpensive (Pay for Only What You Need)**
    - **Experts with an Outside View on Performance**
  - **Con:**
    - **Work for Someone Else Even When on Your Task**
    - **Functional Orientation Rather Than Project Orientation**
    - **May Not Always Be Available**

PERSONNEL SKILL	TASKS		
	SRM	HUBBLE	X-33
ENGINEER	20%	60%	20%
ENGINEER	80%	–	20%
QA	20%	50%	30%
FUNCTIONAL	–	20%	80%

- **Project Staff**
  - **Use for Recurring Activities and Routine Project Management Tasks**
  - **Pro:**
    - **Project Oriented**
    - **Dedicated, Flexible Resource Often with an Expert Point of View**
  - **Con:**
    - **Must Pay for Continuing "Care and Feeding" for Life of Project**
    - **Networking May Be Limited by Project Orientation**
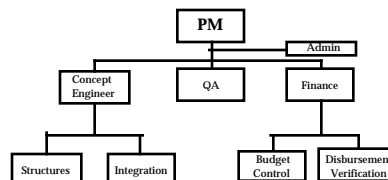
Student Notes:

Choosing Government Agency or Support Contractor for Specialized Surveillance Activities

- **Provide Support for One-time Activities Such as Test and Evaluation, Software IV&V, and Special Technical Activities**

- **Government Agency**
    - **Pro:**
        - **Access to Government Facilities**
        - **Insights into Current Policy and Ongoing Debates**
        - **Easy to Reach**
    - **Con:**
        - **Work for Someone Else**
        - **May Not Be Available**

- **Support Contractor**
    - **Pro:**
        - **Experts in Discipline**
        - **Usually dedicated to the Team's Work**
    - **Con:**
        - **Requires a Contract and Requisite Contractor Performance Monitoring**
        - **Can Only Recommend a Finding**

Student Notes:

Sizing the Insight Organization and Estimating Resources (Continued)

- **Recruit Specialists on a One-time Basis from Other Projects for Specialized Assurance Activities**
  - Design Reviews
  - Readiness Reviews
  - FCA/PCA
- **Plan to Surge up to 200 percent of Full-time Staff for These Critical, Time-limited Activities**

Student Notes:

Sizing the Insight Organization and Estimating Resources (Concluded)

- **Planning for External Government Verification Organization Participation**
  - **Develop a Formal Letter of Agreement or Memorandum of Understanding Outlining "the Deal"**
    - **Acceptance Inspections and Other in-process Verification Surveillance Activities**
    - **Test and Evaluation Verification Support**
  - **OGAs May Have Special Requirements for per Diem, Local Area Living Expenses, etc. Check Them!**

Student Notes:

Defining Project Surveillance Roles and Responsibilities

- **Contractor's Role in Surveillance**
    - **Contractor will define organization, responsibilities, and expected relationship to the Government in the proposal.**
    - **Key points of contact may include the following:**
        - **Project Manager**
        - **Contract Manager**
        - **Systems Engineer**
        - **Quality Assurance Leader**
        - **Software Development Manager**
        - **Integrated Logistics Manager**
        - **Production Manager**
        - **Systems Safety Manager**
- **Relative importance and magnitude of participants will likely vary during the project life cycle.**

Student Notes:

Defining Project Surveillance Roles and Responsibilities (Continued)

- **NASA Participants' Roles**
  - **Project Office Organization**
    - **Project Manager (PM)** - *Outside Person* - **Assures Project Resources Continue to Flow in, Represents Project to the "World," Functions as "Big Picture" Strategist, Resolves High-level Project Issues**
    - **Deputy PM (DPM)-** *Inside Person* - **Manages Project Operations, Coordinates for Matrix Support with Specialist Organizations, Acts as Primary Interface Manager with Contractor**
    - **Project Lead Engineer** - *Project Staff* - **Functions as Technical Leader for Monitoring and Assessing Technical Adequacy of Contractor Approach and Process; Resolves Technical Issues; Monitors Production for Technical Effectiveness; Assesses and Monitors Project Risk**

Student Notes:

**Defining Project Surveillance Roles
and Responsibilities** (Continued)

- **NASA Participants' Roles**
  - **Project Office Organization (Continued)**
    - **SR&MA - Project Staff Provides Insight Monitoring of Quality of Product and Processes; Heavy Direct Contractor Involvement**
    - **Contracts - *Project Staff/Matrix Support* - Monitors Delivery of Product; Provides Invoice Control; Processes Contract Modifications; Monitors Cost Growth in Cost Plus Contracts**
    - **Specialists - *Project Staff/Matrix Support* - Provide Routine and Specialized Support; May Include Roles of Activity Specialists, Metric Monitors, Project Specialists, Test and Evaluation Specialists, Matrix Discipline Specialists**

Student Notes:

Defining Project Surveillance Roles and Responsibilities (Concluded)

- **Other NASA Project/Program Participants' Roles**
  - **NASA Facility Reps - *Project Staff* - Perform Routine Surveillance Activities, Monitor Contractor Project Activities to Assess Health and Assist in Resolving Agency-Contractor Issues; Act as Liaison and Information Conduit; Assist in Performance Audits**
  - **Center Staff Organization - *Insight/Oversight* - Provides Specialized Matrix Support Resources to Project for Defined Tasks; Monitors Overall Project Progress in Context of Center Responsibilities**
  - **HQ Staff Organizations – *Insight/Oversight* – Provide Top-level Policy and Guidance; Allocate Resources for Contract Performance; Sponsor Project through Agency and Legislative Process**
- **Other Government Agencies' Roles**
  - **DCMC Inspectors - *Matrix Support* - Verify Product Adequacy IAW Key Characteristic and Other Contractual Technical Requirements**

Student Notes:

Summary

- **Organization must be tailored to meet the needs of the project.**

- **Present business trends favor flexible matrix organizations.**

- **Assigned responsibility tied to personal accountability for performance has been proven to be a highly effective management strategy.**

- **Sizing of the organization ultimately depends on the resources available, but should be tied to the tasks assigned.**

Student Notes:

Overview of Next Lesson

- **Develop Project Organization Structure**

- **Identify Roles and Responsibilities for Surveillance Activities**

- **Estimate Personnel Requirements (Full-time Equivalent Staff)**

Student Notes:

Student Notes:

**Student Laboratory -
Creating the Project
Surveillance Organization**

**Performance-based Contracting Initiative
IBT Lesson 9**

**Prepared for NASA
by OPM and BDM Federal, Inc.**

November 1996

Student Notes:

Learning Objective

- **In this laboratory, the student team will demonstrate the ability to collaboratively define the structure, participants, and responsibilities of a project performance surveillance team**

Student Notes:

Review of Key Concepts

- **The organization must be tailored to meet the needs of the project.**

- **Present business trends favor flexible matrix organizations.**

- **Assigned responsibility tied to personal accountability for performance has been proven to be a highly effective management strategy.**

- **Sizing of the organization ultimately depends on the resources available, but should be tied to the tasks assigned.**

Student Notes:

Review of Student Plans

- **Surveillance Strategy**

- **Surveillance Activities**

- **Surveillance Metrics**

Student Notes:

Student Team Laboratory Tasking

- **Determinine Organization Structure**

- **Specify Members**

- **Identify External Relationships**

- **Assign Roles and Responsibilities (Activities and Metrics)**

- **Estimate Resource Requirements (Staff Size)**

Student Notes:

Team Presentations and Peer Critique

- **Present Proposed Organization Participants**

- **Describe Surveillance Team Individual Participants**

- **Describe Individual Responsibilities for Surveillance**

- **Receive Critique from Peers**

Student Notes:

**Creating the Project
Surveillance Plan -
Workshop Recap**

**Performance-basedContracting Initiative
IBT Lesson 10**

**Prepared for NASA
by OPM and BDM Federal, Inc.
November 1996**

Student Notes:

Change and Leadership
Are Mutually Supporting

- "If you do not risk changing when the time is right, you will probably be forced to change when you are least prepared for it."

    Risking, David Viscott, M.D.

- Tools of Leadership
    - Task Knowledge
    - Work Experience
    - Willing Attitude
    - Courage of Convictions

- Limited Window of Opportunity to Differentiate Yourself as Either a Leader or Follower

Student Notes:

PBC - PSP Summary

- **PBC's time has come.**
- **Mandate for PBC-PSP application is incontestable.**
- **PBC -PSP focuses on insight-forming performance surveillance.**
- **The total PBC solution requires the following:**
  - **Well-defined Requirements**
  - **Statement of Work/Statement of Objectives**
  - **Contract and Incentive Structure**
  - **Project Surveillance Plan (PSP)**
- **PSP allows no excuses; it applies to everyone in the organization.**

Student Notes:

Strategy Summary

- **Establishes Environment by Establishing Overall Surveillance Themes**
  - Risk-reduction strategy is essential to NASA PBC success.
  - Insight surveillance provides non-intrusive performance monitoring.
- **Allocates Resources to Achieve Outcomes**
- **Presents Contract Surveillance Style**

Student Notes:

Activities Summary

- **First Ask, "Does It Add Value?"**
- **Communications - Essential to PBC Execution**
- **Assurance - Contract Being Executed in a Way that Will Allow Success**
- **Verification - Output Meets the Requirements**

Student Notes:

Metrics Summary

- **Evaluate Attainment of Key Product/Process Characteristics**
- **Constrain Choice of Metrics**
  - **Key Leading Indicators**
  - **Risk Monitoring and Assessment**
- **Establish Control Limits and Recommended Management Response (Known Boundaries and Contingent Response)**
- **Change Performance Metrics by Project Phase**
- **Identify Sources of Metrics Data**
- **Create Clear, Concise, Storytelling Displays**

Student Notes:

Organization Summary

- **Lean Core Teams Augmented by Specialists**
- **Teaming with External Agencies**
- **Clear Responsibilities and Lines of Accountability for Performance**
- **Performance Incentives Must Be Available to Team Members**

Student Notes:

Challenge

NASA

"The American people are calling for dramatic changes in the way their Government works. They want a smaller, less expensive Government that delivers more for less - one that does the right things, with the right people, at the right cost. NASA is in the vanguard of Government reinvention. We are revolutionizing the Agency, and the NASA that emerges will be better than ever."

Daniel Goldin, *NASA Strategic Plan*, February 1996

Will *you* be ready for the revolution?

Student Notes:

Workshop Critique

- **Please complete a critique and leave it at the table near the door on your way out.**
- **Comments to improve our product are certainly welcome.**
- **Instructors are available for any further questions you may have.**

Student Notes: